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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/688,250	10/16/2003	David Tsang	2949P	4560

29141 7590 03/08/2005

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EXAMINER	
NGUYEN, THINH T	

ART UNIT	PAPER NUMBER
2818	

DATE MAILED: 03/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H-A

Office Action Summary	Application No.	Applicant(s)	
	10/688,250	TSANG, DAVID	
	Examiner	Art Unit	
	Thinh T. Nguyen	2818	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 February 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above claim(s) *15-28* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 October 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED OFFICE ACTION

Election/Restriction

1. Applicant's election **with traverse** of claims **1-14** in the communication with the office on February /3rd /2005 is acknowledged.

Because Applicant did not distinctly and specifically point out the supposed error in the restriction requirement (applicant did not give the reason for the traversal), the election has been treated as an election without traverse (MPEP § 818.03(a)). Applicants have the right to file a divisional, continuation or continuation-in-part application covering the subject matter of the non-elected claims.

The traversal is on the ground(s) that see the election paper. This is not found persuasive because the fields of search for method and device claims are NOT coextensive and the determinations of patentability of method and device claims are different, that is process limitations and device limitations are given weight differently in determining the patentability of the claimed inventions. Also, the strategies for doing text searching of the device claims and method claims are different. Thus, separate searches are required.

The requirement is still deemed proper and is therefore made **FINAL**. And non-elected claims 15-28 are not presently considered for examination.

Specification

2. The specification has been checked to the extent necessary to determine the presence

of all possible minor errors. However, the applicant cooperation is requested in correcting any errors of which the applicant may become aware in the specification.

3. The specification is objected to for the following informalities: on page 8 line 9 of the specification –" magnetic write line 82, a bit line 83 "-- should be: -- magnetic write line **83**, a bit line **82** -- so that the reference number of these lines agree with fig 3.

Correction is required.

4. The specification is objected to for the use of the non- standard technical term -- **magnetic write line**--.

According to the applicant (page 8 line 24) – " the magnetic write line 82 may be magnetic or **nonmagnetic**"-- . If it is **non-magnetic** why it is named **magnetic** write line?

From the disclosure of the specification, the a person of ordinary skill in the art will not know what kind of electrical and magnetic attributes and what structural features the magnetic write line must possess to make use of the invention

Drawings

5. The Drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the drawing of a magnetic memory wherein the free layer resides below the insulating layer (in claim 3), the second write line with at least one magnetic write line (in claim 6) or the first write line with laminated structure with one non-magnetic layer and at least one soft magnetic layer (in claim 7) or the write line with

magnetic cladding layer and non-magnetic layer and insulator layer (in claim 8 and 9) must be shown or the features cancelled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in the reply to the Office Action to avoid abandonment of the Application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of U.S.C. 112:

> The specification shall conclude with one ore more claims particularly pointing out and distinctly claiming the subject matter which applicant regard as the invention.

7. Claim 6 is rejected under 35 U.S.C.112 second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as his invention.

Claim 6 recitation of the phrase -- **the second write line includes at least one magnetic write line – make it indefinite.**

It is not clear from the recitation of the claim that the magnetic write line is a sub-line of the second write line or the second write line is a magnetic write line as whole.

Since no complete detailed structural drawings of the magnetic write line is shown, it is not clear what kind of structural features and material characteristics make up the structure the applicant wants to claim.

8. Claims 9 is rejected under 35 U.S.C. 112 second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as his invention.

Claim 9 recites the technical feature –" the magnetic cladding layer being electrically insulated from a remaining portion of the at least one magnetic write line by an insulator. "--

Lack antecedent basis.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102(b/e) that form the basis for the rejections under this section made in this office action.

> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claim 1,2, are rejected under 35 U.S.C. 102(e) as being anticipated by Sharma et al. (U.S. Patent 6,788,605) or Shi (US patent Application publication US 2004/0191928 A1)

REGARDING CLAIM 1,2

Sharma (in fig 3,fig 5) disclose a magnetic memory comprising: a plurality of magnetic elements, each of the plurality of magnetic elements having a top and a bottom; at least a first write line (fig 5 line MBL) connected to the bottom of each of a first portion of the plurality of magnetic elements; and at least a second write line (fig 5 line MWL) residing above the top of a second portion of the plurality of magnetic elements, the at least the second write line being electrically insulated from each of the second portion of the plurality of magnetic elements. And wherein each of the plurality of magnetic elements is a magnetic tunneling junction including a pinned layer (fig109 3 layer 326), a free layer (fig 3 layer 322) and an insulating layer (fig 3 layer 324) between the pinned layer and the free layer; and wherein the pinned layer is part of the at least the first write line.

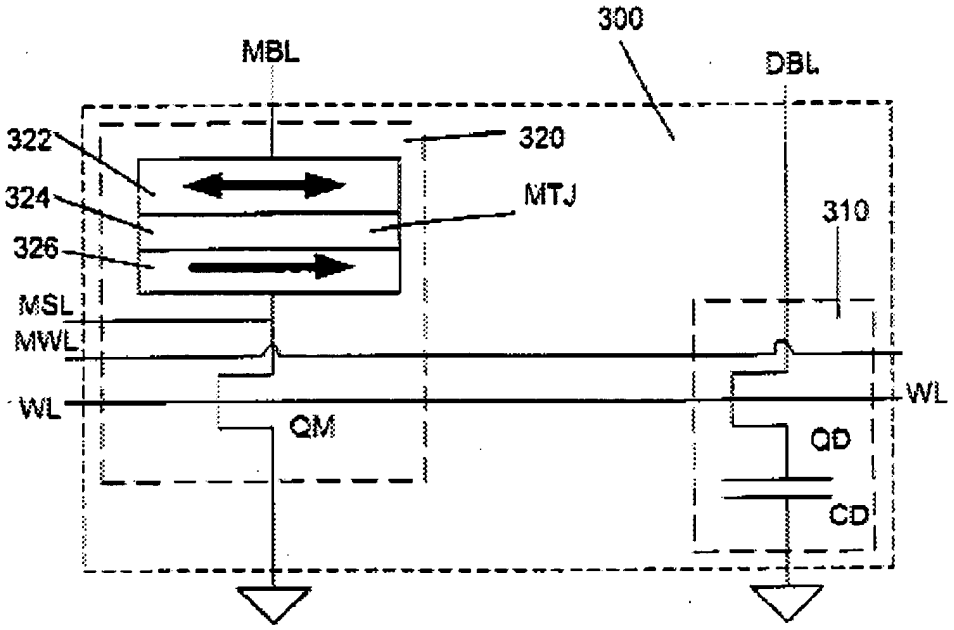

FIGURE 3

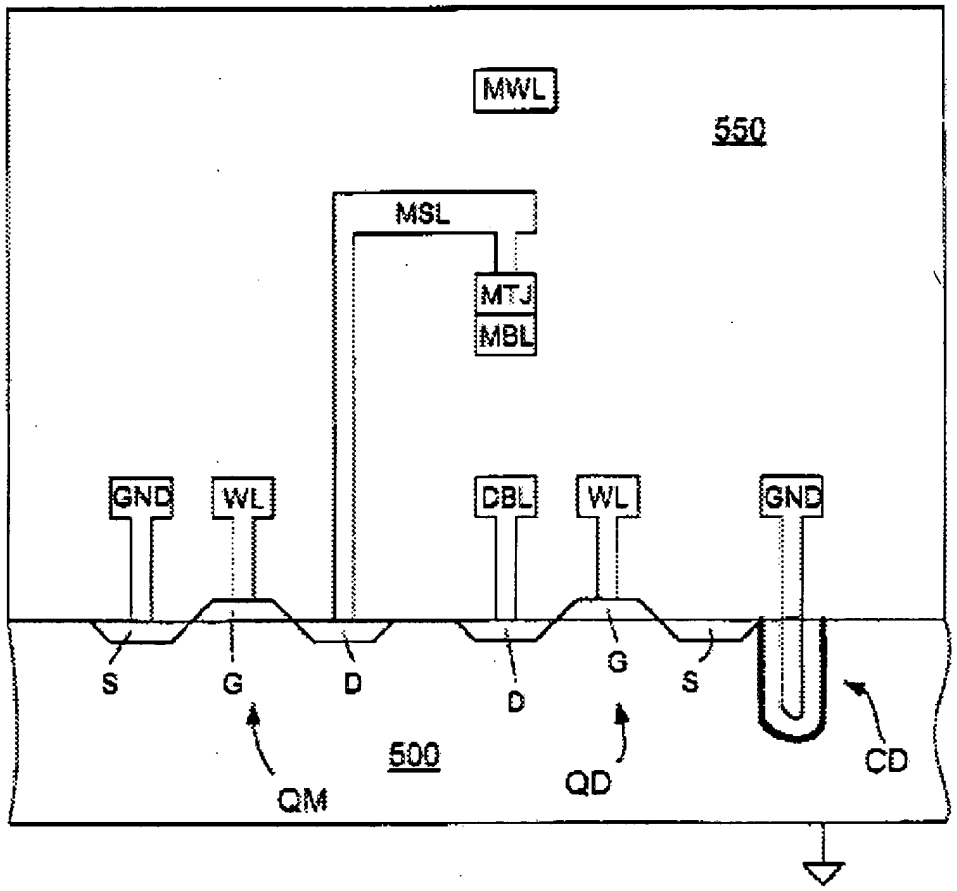

FIGURE 5

Similarly, Shi (in fig 4, bit line 109, second write line 113, TMR element pinned layer1102, insulator layer 1103, free layer 1104) discloses the same invention.

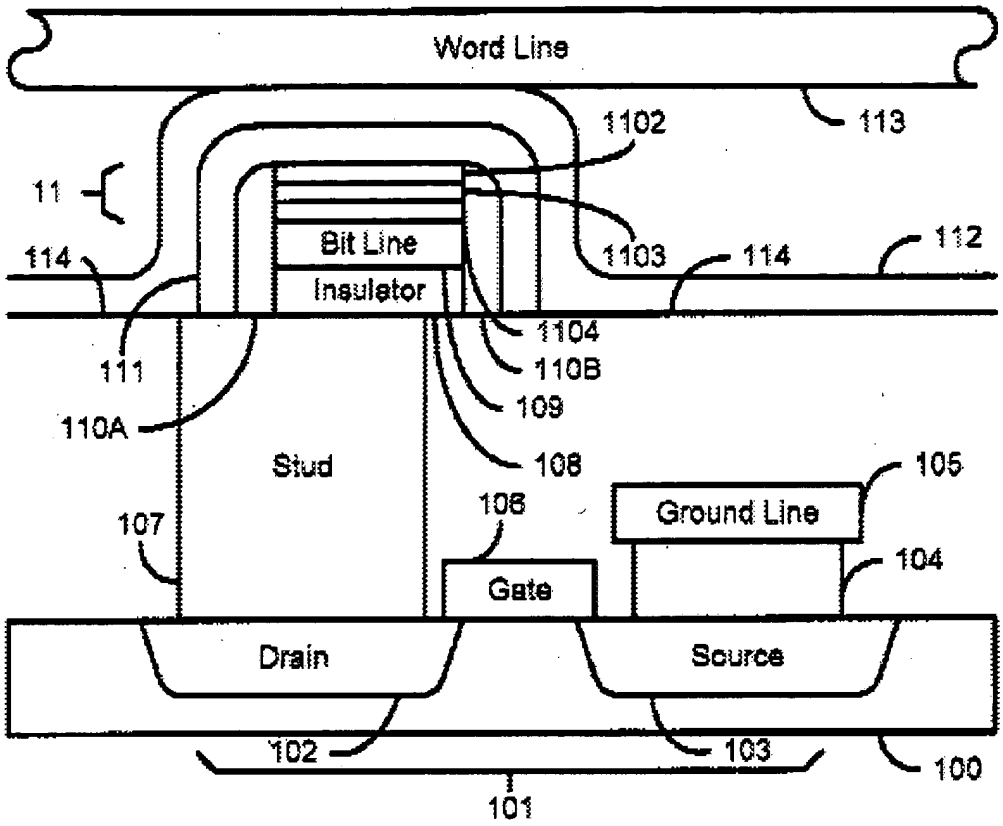

Fig. 4

11. claim 3,14 are rejected under 35 U.S.C. 102(e) as being anticipated by Shi (US Patent Application Publication US 2004/0191928A1)

REGARDING CLAIM 3

Shi discloses (in fig 4) a magnetic memory element wherein the free layer (fig 4 layer 1104) resides below the dielectric layer (fig 4 layer 1103).

REGARDING CLAIM 4

Shi discloses (in fig 4) a magnetic memory element wherein the thin film conductors

(fig 4 reference 111 paragraph [0037] line 10 connecting the top of the magnetic element with isolation devices (fig 4 reference 106).

12. claim 4,5 are rejected under 35 U.S.C. 102(e) as being anticipated by Sharma et al. (U.S. Patent 6,788,605)

REGARDING CLAIM 4,5

Sharma (in fig 3, fig 5) disclose a magnetic memory wherein the free layer (fig 3 layer 322) resides above the insulating layer (fig 3 layer 324) and wherein the pinned layer is part of the at least the first write line. (fig 5 line MBL).

13. The examiner noted that claims 10-13 are hybrid product by process claim.

In a product-by-process claim, it is the patentability of the claimed product and not of the recited process steps which must be established. Therefore, when the prior art discloses a product which reasonably appears to be identical with or only slightly different than the product claimed in a product-by process claim, a rejection based on sections 102 or 103 is fair. The Patent Office is not equipped to manufacture products by a myriad of processes put before it and then obtain prior art product and make physical comparisons therewith. In re Brown, 173 USPQ 685 (CCPA 1972). Also, a product by process claim directed to the product per se, no matter how actually made, In re Hirao, 190 USPQ I S at 17 (footnote 3). See In re Fessman, 180 USPQ 324, 326 (CCPA 1974); In re Marosi et al., 218 USPQ 289, 292 (Fed. Cir. 1983); and particularly In re Thorpe, 227 USPQ 964, 966 (Fed. Cir. 1985), all of which make it clear that it is the patentability of the final structure of the product "gleaned" from the process steps, which

must be determined in a " product by process" claim, and not the patentability of the process(See also MPEP 2113).

Moreover, an old and obvious product produced by a new method is not a patentable product, whether claimed in "product by process" claims or not.

Note that a "product by process" claim is directed to the product per se, no matter how actually made, In re Hirao, 190 USPQ 15 at 17 (footnote 3). See also In re Brown, 173 USPQ 685; In re Luck, 177 USPQ 523; In re Fessmann, 180 USPQ 324; In re Avery, 186 USPQ 161; In re Wertheim, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); In re Marosi et al, 218 USPQ 289; and particularly In re Thorpe, 227 USPQ 964, all of which make it clear that it is the patentability of the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. Note that applicant has the burden of proof in such cases, as the above caselaw makes clear.

14. Claim 10-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Sharma et al. (U.S. Patent 6,788,605) or Shi (US patent Application publication US 2004/0191928 A1).

As discussed in paragraph 14 of the Office Action the process limitations in claim 10-13 are not considered, therefore these claim are fully anticipated by Sharma or Shi as explained in the rejection of claim 1,2.

Claim Rejections - 35 USC § 103

15. The following is a quotation of U.S.C. 103(a) which form the basis for all obviousness rejections set forth in this office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

16. Claims 6,7,8,9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sharma (U.S. patent 6,788,605) in view of Durlam (US patent 6,221,090).

To expedite the prosecution of the case, the examiner assume the applicant will amend the claims and the drawings to overcome the objection and rejection and will examine claims 6-13 as best as it can be understood by the examiner.

REGARDING CLAIM 6-9

Sharma (fig 3,fig 5) disclose all the invention except for the disclosure of a cladding layer including soft magnetic material. Durlam et al.(in fig 1,column 1 line 41) however disclose a magnetic memory device that have soft magnetic cladding layer on bit line.

It would have been obvious for a person of ordinary skill in the art at the time the invention was made to complement the teachings by Sharma with the teachings by Durlam in order to come up with the invention of claim 6-9.

The rationale is as the following:

A person skilled in the art at the time the invention was made would haven motivated to reduce the drive current of the device invented by Sharma and make it a superior device as suggested by Durlam et al. (column 2 lines 14-15).

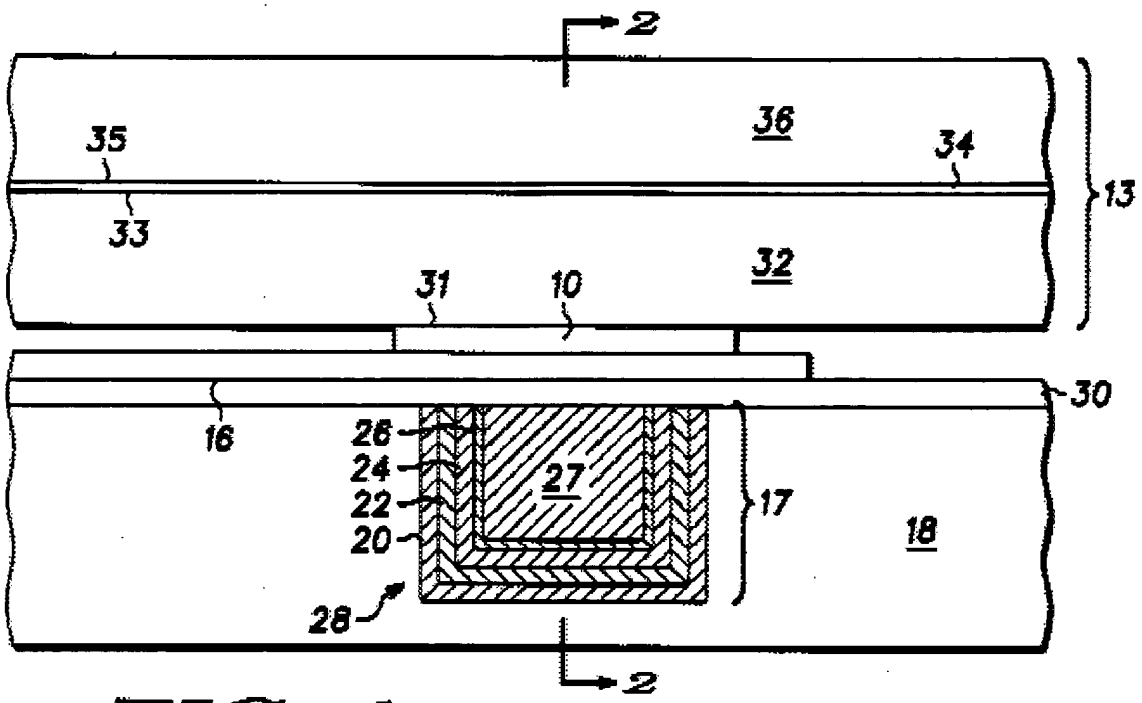

FIG. 1

17. When responding to the office action, Applicants are advised to provide the examiner with the line numbers and the page numbers in the application and/or references cited to assist the examiner to locate the appropriate paragraphs.

18. A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to be abandoned (see M.P.E.P. 710.02(b)).

CONCLUSION

19. The prior arts made of record and not relied upon are considered pertinent to applicant disclosure: Bhattacharyya et al. (US patent 6,740,947) discloses an MRAM with asymmetric cladded conductor.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thinh T Nguyen whose telephone number is 571-272-1790. The examiner can normally be reached on Monday-Friday 9:00am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached at 571-272-1787.

The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Thinh T. Nguyen TTN

Art Unit 2818

David Nelms
Supervisory Patent Examiner
Technology Center 2800